The ADS-B Link Decision Workshop Objectives

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Overview

- Objective of ADS-B Public Meetings
- Status of FAA ADS-B Assessments
- Overview of ADS-B Link Alternatives
- Industry Inputs Needed at this Workshop
- Expected Results

Overall Objective

OBJECTIVE:

Influence FAA's understanding of aircraft implementation costs of ADS-B to support the FAA's plans for making an ADS-B link recommendation to the FAA Administrator in September 2001, leading to a fall 2001 ADS-B link decision

Objectives of Public Meetings re Link Decision

- **June 6th Meeting**
  - ➜ FAA Information Sharing
    - — What we know so far
    - — Areas of risk
    - — Areas where we need industry inputs
  - ➜ Consensus on Need for a Decision

- **Today's Workshop**
  - ➜ Manufacturer/Installer/Operator inputs on costs and risks associated with the ADS-B link alternatives
    - — Identify those ADS-B link alternatives that are both technically and commercially the most viable
  - ➜ User inputs on what factors will encourage user equipage
    - — What capabilities/benefits must be enabled for voluntary equipage
    - — **Sensitivity of equipage rates to costs, services, etc.**

Status of ADS-B Assessments - Technical

- TLAT findings indicate each of the ADS-B links can satisfy some, but not all of the long term requirements considered
  - Additional work is on-going to supplement the TLAT findings
- Status of Standards and spectrum approval varies by link
  - 1090 MHz Extended Squitter has U.S. & International standards & spectrum approved but standards for enhanced capabilities planned for 2002
  - UAT U.S. Standards and Spectrum authorization expected by 2002, ICAO Standards and international spectrum authorization date uncertain
  - VDL Mode 4 ICAO Standards in 2001, international spectrum authorization date uncertain and lack of availability of the necessary VHF channels in the U.S. is a near-to-mid term issue

Status of ADS-B Assessments - Safety and Economic

- An ADS-B Operational Safety Assessment has been completed and potential hazards have been identified
  - detailed functional safety assessment is needed as a next step
- FAA has completed a Pre-Investment Cost Benefits Analysis that considered both ground and airborne elements in the cost model
  - Includes assumptions on costs and equipage rates that need to be validated or modified as appropriate
  - **FAA cost analysis for airborne segment was based on a number of assumptions and as a result may not reflect actual costs for aircraft equipage**
  - **The technical/economic viability of the single-link and multi-link alternatives have not been adequately explored**
  - **The estimates for ADS-B equipage rates need to be subjected to the review of the vendors and users**

Status of ADS-B Assessments - Link Configurations

- The FAA has identified a number of possible combinations of airborne and ground system configurations providing support for multiple ADS-B links
  - FAA with MITRE/CAASD support developed a vendor survey from which some costing data for the multi-link alternatives have been received
  - Additional user inputs are needed to identify those configurations that are both technically and commercially viable

Overview of ADS-B Link Alternatives

- Individual ADS-B links considered
  - Universal Access Transponder (UAT)
  - 1090 MHz Extended Squitter (1090 ES)
  - VHF Data Link - Mode 4 (VDL-M4)
- Various combinations of UAT, 1090 ES and VDL-M4 capabilities must also be considered with complementary airborne and ground functions
- The technical and commercial viability of each alternative configuration needs to be evaluated

Industry Inputs Need at this Workshop

- Help in Identifying the most viable system configurations
  - for representative aircraft/user classes
  - both single link and multi-link
  - understand the associated technical/schedule risks and cost discriminators
- Help in Estimating Avionics and Installation Costs
  - industry inputs needed on avionics and aircraft installation costs for the candidate single and multi-link ADS-B alternatives
  - focused on discriminators between the alternative airborne configurations
- Help in estimating projected aircraft equipage rates for ADS-B by aircraft/user category
  - including sensitivities to cost of equipage, capabilities enabled, and other factors

Expected Results

- Identify a small set of alternative ADS-B configurations that:
  - are technically viable
  - enable the desired ADS-B applications
  - enable aircraft equipage at a reasonable cost
  - do not impede users from achieving early benefits
  - minimize the user cost burden for multi-link alternatives
  - recognize difference needs/preferences by user type
- Validate and/or refine the estimates for user equipage rate
  - by user type
  - sensitivities to equipage costs and services enabled
  - sensitivities to other factors

Agenda

- Workshop Objectives
- International Prospective
- Breakout Sessions (2 data gathering sessions in parallel)
- Review Results of Breakout Sessions
- Next Steps